Comment on the proposed designation of *Bithinia deschiensiana* Deshayes, 1862 and *Paludina desmarestii* Prévost, 1821 as the respective type species of *Euchilus* Sandberger, 1870 and *Stalioa* Brusina, 1870 (Mollusca, Gastropoda)

(Case 3008; see BZN **55**: 82–86)

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1. Contrary to the statement in para. 3 of the application, 'the majority of authors' have not accepted *Bithinia deschiensiana* Deshayes, 1862 as the type species of *Euchilus*. In fact, at least four classical works of the 20th century cited in the bibliography of Kadolsky's application (Dollfuss, 1912; Cossmann, 1921; Wenz, 1926 and 1939) state *Paludina desmarestii* Prévost, 1821 to be the type species of *Euchilus* (cf. para. 1 of the application) and treat it as a synonym of *Stalioa*. I believe stability would be better served by accepting this synonymy, rather than by designating *B. deschiensiana* as the type species as proposed by Kadolsky.

2. A neotype of *Stalioa prototypica* Brusina, 1872 (see paras. 4 and 5 of the application) has been designated and illustrated by Milan, Sakac & Zagar-Sakac (1974, p. 61 and pl. 1, figs. 4–5), although it is possible that the designation may not meet all the requirements of Article 75 of the Code; *S. prototypica* was stated to be the type species of *Bania* Brusina, 1896 (see para. 8 of the application).

3. My opinion is that *Stoliva* should be treated as an incorrect subsequent spelling of *Stalioa* Brusina, 1870, as mentioned in para. 8 of the application; this is indicated by Fuchs (1877) introducing it in combination with *prototypica* and *valvatoides*, the originally included species of *Stalioa* (cf. para. 6). I am against using the plenary powers to suppress *Stoliva*, as though it were an available name.

Additional reference

Milan, A., Sakac, K. & Zagar-Sakac, A. 1974. *Katalog originala tipova vrsta pohranjenih u Geolŏko-Paleontolŏkom Muzeju u Zagrebu / Katalog der im Geologisch-paläontologischen Museum in Zagreb aufbewahrten Originale von Artentypen.* 186 pp., 2 pls., 1 map. Zagreb.

Comment on the proposed conservation of *Hydrobia* Hartmann, 1821 (Mollusca, Gastropoda) and *Cyclostoma acutum* Draparnaud, 1805 (currently *Hydrobia acuta*) by the replacement of the lectotype of *H. acuta* with a neotype; proposed designation of *Turbo ventrosus* Montagu, 1803 as the type species of *Ventrosia* Radoman, 1977; and proposed emendation of spelling of HYDROBIINA Mulsant, 1844 (Insecta, Coleoptera) to HYDROBIUSINA, so removing the homonymy with HYDROBIIDAE Troschel, 1857 (Mollusca)

(Case 3087; see BZN **55**: 139–145; **56**: 56–63, 143–148)

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The phylogeny and systematics of the genus *Hydrobia* Hartmann, 1821 are receiving continuing study at the Academy of Natural Sciences in Philadelphia. More than 500 specimens have been dissected, all the internal organs (including the gill filaments and brain nerves) have been measured, and three genes have been sequenced from about the same number of individuals.

We wish to comment on the application submitted by Prof F. Giusti, Dr G. Manganelli and Dr M. Bodon (BZN **55**: 139–145, September 1998), and on some subsequent comments. We state below that (1) single specimens of *Hydrobia acuta* (Draparnaud, 1805) and *Ventrosia ventrosa* (Montagu, 1803) cannot be distinguished on the basis of shells alone, which are inadequate for unequivocal identification (cf. the comment by Naggs et al. in BZN **56**: 143–144, June 1999); (2) Boeters's (1984) lectotype designation for *H. acuta* was valid under the Code but it will, if not set aside, cause unending confusion (cf. the comment by Boeters et al. in BZN **56**: 57–62, March 1999); (3) Boeters's (1984) action was based on selective and conflicting data and on speculation and we recommend that the Commission set aside the lectotype designation; the refound syntypes of *H. acuta* must be considered unidentifiable; (4) the application submitted by Giusti, Manganelli & Bodon has our complete support.

(1) In our work on *Hydrobia*, so far more than 60 populations from Europe, North America, North Africa and West Asia have been studied by comparative qualitative and quantitative anatomy, as well as molecular genetics using three genes. Fifteen are topotypical populations of nominal species often classified as *Hydrobia*, including *V. ventrosa* and *H. acuta*. In addition, an outgroup comparison with 12 populations of closely related species of the HYDROBIINAE, as well as 20 more populations of the HYDROBIIDAE s.l., has been conducted. The results of this study will be published elsewhere, but for the application the following points are relevant.

(i) The genus *Hydrobia* s.l. should be subdivided into three genera (or subgenera): *Hydrobia* s.s., containing at least three species, including *H. acuta* (sensu Radoman, 1977); *Ventrosia* containing at least four species, including *V. ventrosa*; and *Peringia* Paladilhe, 1874 with *Turbo ulvae* Pennant, 1777 as the type species and only representative.

(ii) If Boeters's (1984) lectotype designation were accepted, then *Hydrobia* would become an older name for *Ventrosia*, the specific name of *V. ventrosa* would become an older name for *H. acuta*, and the group generally known as *Hydrobia* would require a new name.

(iii) Single individuals of *V. ventrosa* and *H. acuta* (sensu Radoman) cannot be distinguished by shell characters alone, except perhaps by the sculpture of the protoconch in juvenile specimens. (This sculpture is generally eroded away in adults). Specimens of *V. ventrosa* tend to have more convex whorls and deeper sutures, whereas the whorls in *H. acuta* are often flatter. However, these are only tendencies. Individual specimens of each species may well have flat or convex whorls, and DNA sequence data do not always confirm species assignments made on the basis of shell morphology. In some localities where the species are sympatric, only about 80% of preliminary identifications are confirmed by DNA sequences. In addition, trematode parasitism, which is common in these species, can affect the shell morphology of over 90% of mature adults in a population. All determinations based only on shell morphology are therefore speculative and, in the absence of supporting information such as detailed locality data, it is folly to designate a lectotype of a hydrobioid snail using only the shell.

(2) Boeters's (1984) lectotype designation is questionable for a number of reasons. Boeters found at the putative type locality of *Hydrobia acuta* two species with distinctive male and female genitalia. He assigned the taxon with an awl-like penis and a hammer-like bursa to '*H. acuta*' (i.e. *Ventrosia ventrosa* auctt.), and the second taxon with a distally widened penis and a sack-like bursa to *Hydrobia* sp. One of the reasons for identifying the first taxon as *H. acuta* was that, according to Boeters, species of *Hydrobia* were always assigned in the literature to the anatomical characteristics of an awl-like penis and a hammer-like bursa. To prove his assumption, he (1984) listed anatomical features of four '*Hydrobia*' species (*H. ulvae*, *H. ventrosa*, *H. totteni* and *H. procera*), all supposedly with an awl-like penis and/or hammer-like bursa. However, *Hydrobia ulvae* does not have these features. Later (1987), Boeters stated exactly the opposite: *Hydrobia ulvae* 'Unterscheided sich ... durch die sackförmige und nicht hammerförmige Bursa' [differs ... by its sack-like and not hammer-like bursa]. Moreover, all four species listed by Boeters potentially belong to different genera or subgenera: *H. procera* Paladilhe, 1874 is probably a synonym of *Heleobia stagnorum* (Gmelin, 1791); *H. totteni* Morrison, 1954 is a synonym of *H. truncata* (Vanatta, 1924) which belongs, together with *H. ventrosa*, in the genus *Ventrosia*; *H. ulvae* (Pennant, 1777) belongs to the (sub)genus *Peringia*. Boeters (1987) himself assigned *H. ulvae* to the subgenus *Peringia*. Boeters's approach, to predict the general ground plan of a type species by studying anatomical features of non-type species (which may not even belong to the same genus), is unacceptable. Boeters (1984) ignored Mars (1966) and Radoman (1977), who published morphological and anatomical studies of *H. acuta*.

Although claiming that *Hydrobia* species always have an awl-like penis and a hammer-like bursa, Boeters (1980) placed *Hydrobia glyca* (Servain, 1880), a species he figured with the same genitalia as *H. acuta* sensu Radoman, i.e. with a distally enlarged penis, in the genus *Hydrobia*. He (1987) even placed *Hydrobia minoricensis* (Paladilhe, 1875) (a species that, according to our preliminary molecular and anatomical data, is conspecific with *H. acuta* sensu Radoman) in the same subgenus as *H. acuta* sensu Boeters (i.e. *V. ventrosa*), although these species have different genitalia (a distally enlarged vs. an awl-like penis). Although claiming in 1984 that all *Hydrobia* species have a hammer-like bursa, Boeters stated in 1987 that *Hydrobia acuta* (sensu Boeters) had a hammer-shaped bursa but that all other *Hydrobia* did not.

It is unclear why Boeters referred to the second species that he found with *H. acuta* (sensu Boeters) as '*Hydrobia* sp.' although it did not fit his *Hydrobia* concept. Why did he not state what he believed was its generic allocation? We do not agree with the statement (para. 7 of the application) that this second species 'can clearly be identified as *Hydrobia acuta* sensu Radoman (1977)'.

Even more important than all these confusing contradictions is the fact that Boeters (1984) refrained from discussing the possible synonymy of *Hydrobia acuta* (sensu Boeters) and *Ventrosia ventrosa*. Boeters spearheaded anatomical studies in European hydrobiids and he must at least have suspected the synonymy.

However, he never mentioned it, either in his (1984) paper on *H. acuta* or in all his subsequent papers. Thus, in his revision (1988) of the Spanish and Portuguese MOITESSIERIIDAE and HYDROBIIDAE, *V. ventrosa* is not even referred to although in the literature it is frequently reported from the area.

(3) In addition to these confusing contradictions and omissions, two other major problems make Boeters's (1984) lectotype designation questionable: missing locality information and species identification of Draparnaud's (1805) original type material. The type locality of *H. acuta* may be the Étang du Prévost near Palavas-les-Flots, as predicted by Radoman (1977) and as cited in para. 5 of the application, but it could be elsewhere in France as Draparnaud gave no detailed locality information. *Hydrobia acuta* and *V. ventrosa* are frequently sympatric all over the French Mediterranean and Atlantic coasts. If the material originated at the Atlantic coast, a third species, *Peringia ulvae*, could also be part of the type material. This species is usually distinguishable from the other two by its large size, solid shell and very flat whorls. In some cases, especially in places with very low salinity, shells of *P. ulvae* may, however, be virtually indistinguishable from *H. acuta* or *V. ventrosa*. The material could also have originated from the French Biscay coast, an area where *H. acuta* is possibly replaced by a closely related species, *H. glyca*. Besides *Hydrobia*, other hydrobiid species could well be part of the type material as *Heleobia stagnorum* or closely related species are not distinguishable from *Hydrobia* species using shell characters alone. Species of *Hydrobia* and *Heleobia* are frequently sympatric on the Atlantic and Mediterranean coasts. But even if the original type material did originate in the Étang du Prévost near Palavas-les-Flots, and even if it did contain only the two species *H. acuta* and *V. ventrosa*, the species assignment of shells to these taxa is uncertain. Figures 3 and 7 in Giusti, Manganelli & Bodon (1998) make it very clear that species identification is highly dubious.

Considering these facts, any further speculations regarding the identity of Draparnaud's (1805) type material are useless and the syntypes must be considered unidentifiable.

(4) The missing locality information of the type material of *Hydrobia acuta* and the impossibility of a clear identification force the designation of a neotype that is anatomically determined and has exact locality data, as proposed by Giusti, Manganelli & Bodon in their application. The proposed neotype reflects a widely accepted understanding of the species (see Haase, 1993, for a review). Therefore its acceptance would stabilize the use of the specific name *H. acuta* and of the generic names *Hydrobia* and *Ventrosia*. It would also end the controversy caused by the lectotype designation by Boeters (1984).

We therefore urge the Commission to agree to set aside Boeters's lectotype designation and to accept the proposed neotype, thus conserving the common and widely accepted understanding of the genus *Hydrobia* and of its type species *H. acuta*, and of *Ventrosia* and *V. ventrosa*.

Additional reference

Boeters, H.D. 1980. Unbekannte westeuropäische Prosobranchia, 3. *Basteria*, **44**(5–6): 61–64.